VOP Site
appendices AO (5/86)
to

LIST OF APPENDICES

APPENDIX A

REMEDIAL INVESTIGATION

SCOPE OF WORK

REMEDIAL INVESTIGATION SCOPE OF WORK

I. REQUIREMENTS OF REMEDIAL INVESTIGATION

A. Fully characterize all waste and other materials which are, or may be the source(s) of pollution at the site

B. Fully determine the nature, type and physical states of soil, surface water and ground-water pollution at and/or emanating from the site

C. Fully determine the horizontal and vertical extent of pollution at and/or emanating from the site

D. Fully determine migration paths of pollutants through air, soil, ground water, surface water and sediment

E. Fully determine impact of the pollution on human health and the environment

F. Collect, present and discuss all data necessary to adequately support the development of a feasibility study and the selection of a remedial action alternative that will remediate the adverse impacts of the pollution on human health and the environment

II. CONTENTS OF REMEDIAL INVESTIGATION WORK PLAN

IMPORTANT NOTE: All of the following items shall be included in the RI Work Plan. If any of the items have previously been submitted or completed, it shall be so stated in the RI Work Plan. For these items, the following shall be included in the RI Work Plan:

- description of items submitted and/or summary of investigation completed

- date(s) of submission or completion

- any known changes or new information developed since submission or completion

The Department will determine the extent to which prior submissions or completions may satisfy specific items required by this Scope of Work.

A. A statement of requirements for the remedial investigation pursuant to Section I., above

B. A complete site history including:

1. a description, including dates, of all uses and activities on the site, both past and present

2. a list of all raw materials used and products made, past and present, including all pertinent dates

3. a description, including dates, of all past and present disposal practices as well as the location of all known and suspected pollution sources

4. all historical site plans and facility as-built construction drawings available to or in UOP's possession

5. all aerial photographs of the site in possession of or available to UOP

6. a site water budget: input, use, distribution and discharge

C. A detailed schedule for all remedial investigation activities set forth in this Administrative Consent Order and in this Scope of Work including:

1. dates for submission of all required permit applications

2. dates for start and ending of all field investigations

3. dates for submission of all reports

D. Curriculum vitae of all key personnel who will participate in the remedial investigation

E. A summary, review and evaluation of all existing environmental data relevant to the site

F. A field sampling plan including:

1. Waste characterization

a. specify number, type and frequency of samples required to accurately characterize all solid waste in tanks, drums, lagoons/impoundments, piles or otherwise at the site

b. explain the type of data which will be collected, justification for collection, and intentions for use of the data

c. specify location (on site map) and depths of proposed soil borings, test pits and other sampling points

d. specify EPA analytical procedures, including test parameters for waste analyses

e. specify chain-of-custody procedures

f. specify the name of the State certified laboratory NAME will use for analysis of all samples

g. specify when Tier I [and Tier II] quality assurance deliverable requirements will be submitted in accordance with Appendix C

h. specify all Federal, State and local permits required

i. specify investigation procedures in accordance with the following:

i. obtain drilling permits for all soil borings pursuant to N.J.A.C. 58:4A-14

ii. install soil borings under direct supervision of a New Jersey licensed well driller and a qualified geologist

iii. decontaminate soil boring and sampling equipment between individual samples and borings according to the approved decontamination plan

iv. classify waste according to N.J.A.C. 7:26-1 et seq.

v. use field instrumentation (PID, FID) to analyze soil samples in the field

vi. analyze waste samples to quantify and determine type of pollutants

vii. permanently seal all soil borings using a certified well sealer

2. Soil investigation

a. specify number, type and frequency of samples required to accurately define the horizontal and vertical extent of soil pollution at and/or emanating from the site, including but not limited to the following:

i. the landfill located in the NE section of Area 5, as indicated in Figure 1 of the RI Work Plan. This would require the performance of a geophysical survey, installation of additional soil borings, and/or test pits. Soils samples shall be obtained at discrete depth intervals during all soil boring and/or test pit excavations, and shall be analyzed by a laboratory approved by NJDEP for the following parameters:

- Full Organic Priority Pollutants + 40

- Cyanide
- Heavy Metals: Lead, Chromium, Cadmium, Mercury, Arsenic, Zinc and Manganese.

Soil samples shall be collected from each boring 6 - 18 inches, and at 12 inches above the water table (anticipated at about 4 feet deep). Approximately 4 borings per acre is recommended by NJDEP. All soil samples shall be retained for possible future reference and/or analysis.

ii. The extent of contamination present in Area IA between the tank farm and the waste lagoon as indicated in Figure 1 of the approved RI Work Plan. This will require installation of monitor wells, additional soil borings and/or test pits. Soil samples from test borings and test pits shall be obtained at discrete depth intervals and shall be analyzed by a laboratory certified by NJDEP for the same parameters indicated in paragraph No. 2.ai.

iii. The extent of soil contamination in the saturated and unsaturated zones in Area 1, as depicted in Figure 1 for the following parameters: Dichlorobenzenes, Lead, Chromium, PCB, and volatile

organics.

Approximately four (4) borings per acre are recommended by NJDEP with two (2) soil samples collected from 6 - 18 inches and 12 inches above the water table. Soil quality and site maps shall be prepared to assist in this delineation.

iv. The extent of soil contamination in Area 2, as depicted in Figure 1 of the approved RI Work Plan, for the following parameters: Volatile Organics, Chromium, PCB, and Zinc. Soil samples shall be collected as described in paragraph 2.ai.

v. The extent of soil contamination in Area 6 for the following parameters: Volatile Organics, Chromium, Mercury and PCB. Soil samples shall be collected as described in paragraph 2.ai.

b. explain the type of data which will be collected, justification for collection and intentions for use of the data

c. specify location (on site map) and depths of proposed soil borings, test pits and other sampling points

d. specify EPA analytical procedures, including test parameters for soil analyses

e. specify chain-of-custody procedures

f. specify the name of the State certified laboratory NAME will use for analysis of all samples

g. specify when Tier I [and Tier II] quality assurance deliverable requirements will be submitted pursuant to Appendix C, which is attached hereto and made a part hereof. Because limited data is available in Areas 1A and 5, the analytical results shall be reported according to the Tier I guidance. In Area 1,2,4 and 6, only 20% of the analyses shall be reported according to Tier I, the remaining 80% of the results shall be reported according to Tier II.

h. specify all Federal, State and local permits required

i. specify investigation procedures in accordance with the following:

   i. obtain drilling permits for all soil borings pursuant to N.J.A.C. 58:4A-14

ii. install soil borings under direct supervision of a New Jersey licensed well driller and a qualified geologist

iii. decontaminate soil boring and sampling equipment between individual samples and borings according to the approved decontamination plan

iv. classify soil according to a standard approved system, e.g. Burmeister, Unified, USDA

v. analyze particle size in laboratory on representative samples to confirm field identification

vi. use field instrumentation (PID, FID) to analyze soil samples in the field

vii. analyze soil samples to quantify and determine type of pollutants

viii. permanently seal all soil borings using a certified well sealer

3. ground-water and potable well investigation

a. specify number, locations (on site map) and designs of existing and proposed piezometers, monitor wells,

potable wells, and other sampling points required to accurately define the horizontal and vertical extent of ground-water pollution at and/or emanating from the site, including but not limited to the following:

i. Three (3) monitor wells which were previously required, but not installed due to accessibility and right of way problems. These wells shall be relocated to positions acceptable to NJDEP taking into consideration any physical limitation. Where necessary, NJDEP will assist UOP in obtaining access from adjacent property owners.

ii. Two (2) water table well points in the landfill area located in the Northeast section of the property. Monitoring points are required in the area to determine any potential impact on the underlying groundwater.

b. explain the type of data which will be collected, justification for collection, and intentions for use of the data

c. specify number, type and frequency of ground-water and potable well samples required to accurately define the

horizontal and vertical extent of ground-water pollution at and/or emanating from the site

d. specify EPA analytical procedures, including test parameters for ground-water analyses

e. specify chain-of-custody procedures

f. specify the name of the State certified laboratory NAME will use for analysis of all samples

g. specify when Tier I [and Tier II] quality assurance deliverable requirements will be submitted in accordance with Appendix C. Because limited data is available in Areas 1A and 5, the analytical results shall be reported according to the Tier I guidance. In Areas 1, 2, 4 and 6, only 20% of the analyses shall be reported according to Tier I, the remaining 80% of the results shall be reported according to Tier II.

h. specify frequency of synoptic static water level measurements

i. specify all Federal, State and local permits required

j. specify investigation procedures in accordance with the following:

i. have a qualified hydrogeologist with substantial experience in ground-water pollution investigations oversee all site activities

ii. obtain well drilling permits pursuant to N.J.S.A. 58:4A-14. The required well drilling permits can be obtained from the DWR's Water Allocation Unit (609) 984-6831;

iii. drill all wells under the direct supervision of a New Jersey licensed well driller and a qualified hydrogeologist

iv. install wells in accordance with the monitor well specifications in Appendix D, which is attached hereto and made a part hereof

IMPORTANT NOTE: Improperly constructed monitor wells can compound a pollution problem. Therefore, particular attention shall be given to the details of these specifications. The Department has the authority to shut down a drilling operation which is not adhering to the approved procedures. Data derived from improperly constructed wells shall not be accepted by the Department.

v. collect split spoon samples during drilling through the overburden according to ASTM Standard Penetration Methods, ASTM D1586-67, at 0 - 2', five (5) foot intervals, at changes in soil strata, and at all zones which show obvious signs of pollution; with a specific number of drilling locations including continuous split spoon samples to fully define subsurface stratigraphy

(a). Soil samples obtained from the split spoon shall be screened in the field using a organic vapor analyzer (PID or FID). Selected samples shall be sent for confirming analysis. These soil samples shall be analyzed for priority pollutants plus 40.

vi. retain all soil and rock samples for future reference and/or analysis

vii. decontaminate drilling and sampling equipment after each drilling and sampling event according to the approved decontamination plan

viii. survey all well casings, to the nearest hundredth (0.01) foot above mean sea level and horizontally

to an accuracy of one-tenth (1/10) of a second latitude and longitude by a New Jersey licensed land surveyor. A water level measurement point shall be etched into the well casing to facilitate accurate, reproducible water level measurements.

ix. Take precautions in surveying the newly installed wells so that the elevations obtained will accurately integrate into the existing elevations of the previously installed wells and will be tied to the same datum plane.

x. obtain synoptic static water levels to the nearest hundredth (0.01) foot in each monitor well

xi. collect all ground-water samples pursuant to N.J.A.C. 7:14A-6.12

xii. well samples shall not be collected within 14 calendar days of installation and development of the wells

xiii. complete sufficient pumping and packer tests to adequately define aquifer characteristics and develop recovery well design for aquifer restoration

xiv. complete geophysical surveys and/or ground-water modeling as appropriate for the site

4. surface water and sediment investigation

a. specify number and type of samples required to accurately determine the horizontal and vertical extent of surface water and sediment pollution at and/or emanating from the site, including but not limited to the following:

i. In Area 4, and the North Ditch, UOP shall obtain sediment samples from various depths and transects accross the stream. Sediment samples shall be analyzed for the following parameters:

Area 4	- PCB*, Mercury and Chromium
North Ditch	- PCB*, Mercury, Chromium and Dichlorobenzene

*Any PCB field analyses performed must be verified in the laboratory.

b. explain the type of data which will be collected, justification for collection, and intentions for use of the data

c. specify location (on site map) of surface water and sediment sampling points

d. specify EPA analytical procedures, including test parameters, for surface water and sediment analyses

e. specify chain-of-custody procedures

f. specify the name of the State certified laboratory NAME will use for analysis of all samples

g. specify when Tier I [and Tier II] quality assurance deliverable requirements will be submitted in accordance with Appendix C. Because limited data is available in areas 1A and 5, the analytical results shall be reported according to the Tier I guidance. In areas 1,2,4 and 6, only 20% of the analyses shall be reported according to Tier I, the remaining 80% of the results shall be reported according to Tier II.

h. specify all Federal, State and local permits required

i. specify investigation procedures in accordance with the following

i. analyze surface water and sediment samples to determine the presence of pollutants in the surface water and sediment according to the approved sampling plan

ii. decontaminate sampling equipment between sampling events according to the approved decontamination plan

iii. collect surface water and sediment samples in accordance with Field Procedures Manual for Water Data Acquisition, Division of Water Resources, New Jersey Department of Environmental Protection, 1983

5. ambient air monitoring investigation

a. characterize baseline air quality conditions on and in the vicinity of the site, and identify present air quality hazards related to the site

b. develop a field screening protocol including:

i. wellhead monitoring and soil sample emissions analyses

ii. any specific air quality concerns in the ultimate selection of a remedial alternative

iii. any adverse air quality impacts that may be associated with the selected remedial action

iv. enable the implementation of measures to control any adverse air quality impacts that may occur during the course of remedial activities (for example, to design and implement a construction related air program to monitor ambient levels)

v. specify all Federal, State and local permits required

vi. specify investigation procedures

G. A health and safety plan based on EPA protocols for on site personnel to minimize the risk of personal injury, illness and potential environmental impairment associated with the site investigation, including:

1. listing of personal protective equipment (including respiratory protection) to be used and guidelines for their use,

including manufacturer, model, duration of safety period, and any required certification documentation

2. listing of safety equipment (including manufacturer, expiration date and model) to be used, such as fire extinguishers, portable eye wash stations, air monitoring equipment, gamma survey instrument, etc. (equipment shall meet OSHA standards or other acceptable industrial standards)

3. contingency plans for emergency procedures, spill prevention/response, and evacuation plans

4. on site monitoring for personnel safety (e.g. PID, FID)

5. criteria for selecting proper level of personal protection

6. medical surveillance program for all on site personnel involved in remedial investigation

7. personal hygiene requirements

8. training program including training protocol

9. special medical procedures to be available at site

10. telephone numbers of emergency medical facility and personnel

H. An equipment decontamination plan including:

1. list the items to be decontaminated

   a. drilling equipment, paying particular attention to down hole tools, back of drilling rig and drilling rod racks

   b. sampling equipment including split spoons, shelby tubes, trowels, spatulas, etc.

   c. bailers, pumps, hoses, etc.

   d. personnel clothing

2. procedures for decontamination

   a. all field sampling equipment shall be laboratory cleaned, wrapped and dedicated to a particular sampling point, unless written permission for field cleaning is obtained from the Department prior to the collection of any samples

   b. field cleaning of well casing, well screening and drilling equipment shall consist of a manual scrubbing to remove foreign material and steam cleaning inside and out until all traces of oil and grease are removed;

this material shall then be stored in such a manner to preserve it in this pristine condition

c. split spoons, bailers, pumps, etc.

- non-phosphate detergent

- tap water rinse

- distilled/deionized water rinse

- 10% nitric acid rinse*

- distilled/deionized water rinse*

- acetone (pesticide grade) rinse

- total air dry or nitrogen blow out

- distilled/deionized water rinse

* only if sample is to be analyzed for metals

d. hoses

- steam cleaning

- alconox scrub

- alconox flushing

e. the chain of custody for sampling events shall begin with the cleaning of the sampler; wherever possible samplers should be numbered in a manner that will not affect their integrity, wrapped in a material (i.e. aluminum foil) that has either been autoclaved or cleaned in the same manner as the sampler

f. the use of distilled water commercially available in 5 gallon polyethylene carbons is acceptable for sampler decontamination provided that it is also deionized; use of this water is unacceptable for field and trip blanks unless it has been demonstrated to be analyte free by laboratory analyze

IMPORTANT NOTE: Use of dedicated sampling equipment is recommended

III. CONTENTS OF REMEDIAL INVESTIGATION REPORT

A. Presentation of data

1. results of all analyses on data sheets supplied by the Department, laboratory data sheets and the required quality assurance documentation

2. summary table(s) of all analyses

3. stratigraphic logs including grain size and field instrument readings detected during drilling for each soil boring and monitor well

4. as-built construction diagrams for each soil boring and monitor well

5. well casing elevations to the nearest hundredth (0.01) foot above mean sea level, taken at the top of casing with locking cap removed

6. depth to ground water to the nearest hundredth (0.01) foot above mean sea level, taken at the top of well casing prior to sampling with cap removal

7. all support data including graphs, equations, references, raw data, etc.

B. Maps

1. site map

a. property boundaries

b. structures and improvements

c. surface water bodies

d. site and adjacent land use

e. topography indicating two foot contours

f. all underground piping and utilities

g. all underground tanks, associated piping, lagoons, seepage pits, dry wells, etc.

h. scale and orientation

2. sample location map(s)

a. monitor well locations and casing elevations

b. sample collection locations

c. soil boring locations

3. soil quality contour map and cross section(s)

4. ground-water elevation contour maps for each aquifer on multiple dates

5. ground-water quality contour map(s) and cross section(s)

6. ground-water flow contour maps shall be submitted taking into consideration tidal influences on groundwater and surface water. That is specific water level data shall be collected from representative wells during a period of high tide and low tide. Preferably this data should be collected within a 24 hour period. The map shall also include the time of day, date, observed tide and weather conditions. Tabulated summary of water level data shall also be submitted.

C. Discussion of data

1. waste characterization, including degree of hazard and probable quantities of waste, by type

2. description of site/regional hydrogeology and its relation to migration of pollutants

3. direction and rate of ground-water flow in the aquifer(s), both horizontally and vertically

4. levels of soil, surface water and ground-water pollution as compared to applicable standards pursuant to N.J.A.C. 7:14A-1 et seq., 7:9-5, 7:9-6, and guidelines, or background levels where pertinent

5. extent of soil, surface water and ground-water pollution both on and off site

6. pollutant behavior, stability, biological and chemical degradation, mobility and any other relevant factors pertinent to the investigation

7. projected rate(s) of pollution movement

8. identification of all pollution sources

9. identification of critical pollutants

D. Assessment of impact of pollution on human health and the environment

1. identification of human receptors in the paths of pollution migration; mobility of pollutants and specific routes to target organs (e.g., liver)

2. identification of the receiving media and/or ecological groups and migration pathways of critical pollutants

3. toxicology of each critical pollutant (acute and chronic toxicity for short and long-term exposure, carcinogenicity, mutagenicity, teratogenicity, synergistic and/or antagonistic associations, aquatic toxicity, ecological impacts on flora and fauna, etc.)

4. migration potential and environmental fate of each critical pollutant in site-specific terms (e.g., attenuation, dispersion and biodegradation are factors in the ground-water pathway)

5. evaluation of potential for biomagnification and/or bioaccumulation of critical pollutants in the food chain

E. Recommendations for additional investigations

1. waste

2. soil

3. ground water

4. surface water and sediment

5. air

APPENDIX B

QUALITY ASSURANCE REQUIREMENTS

QUALITY ASSURANCE DELIVERABLE REQUIREMENTS

There are three parts to this Appendix. The first part outlines, according to sample/data type, frequency and use, the approximate percentage of samples for which the Tier I and Tier II quality assurance deliverables are required. The second part is a copy of the Tier I Quality Assurance Deliverable Requirements. The third part is a copy of the Tier II Quality Assurance Deliverable Requirements.

CRITERIA FOR
QUALITY ASSURANCE
DELIVERABLE REQUIREMENTS

	TIER I	TIER II
A. Remedial Investigation:		
1. initial RI phase	100%	
2. subsequent RI phases	10%, or minimum of one monitor well, or one sample per sampling event	90%
B. Remedial Action:		
1. monitoring of decontamination effectiveness		
a. initial sampling	100%	
b. subsequent sampling	25%	75%
2. sampling to support proposal to terminate decontamination system	100%	
3. post cleanup/removal soil sampling to determine if any additional cleanup/ removal is required	100%	

C. Other Site Specific Considerations:

1. potable water

a. initial sampling	100%	
b. subsequent sampling	25%	75%

APPENDIX C

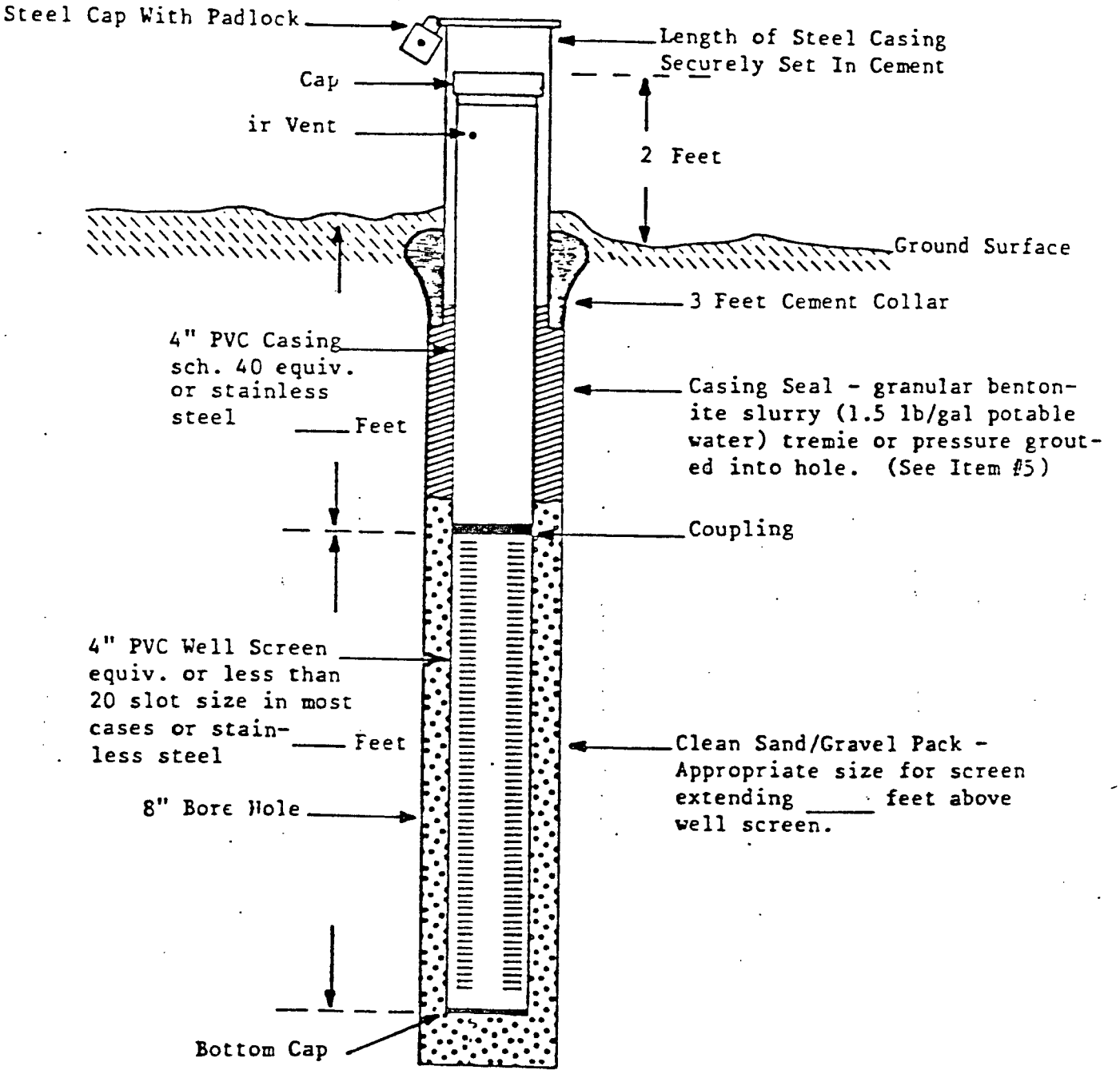
MONITOR WELL SPECIFICATIONS

Unconsolidated Monitor Well Specifications

te Name: _____

Location: _____

Date: _____



NOT TO SCALE

EQUIREMENTS:

. Notification to the NJDEP is required two (2) weeks prior to drilling.
. State well permits are required for each monitor well constructed by the driller. Report "use of well" on well permit application. Permit number must be permanently affixed to each monitor well.

OVER PLEASE

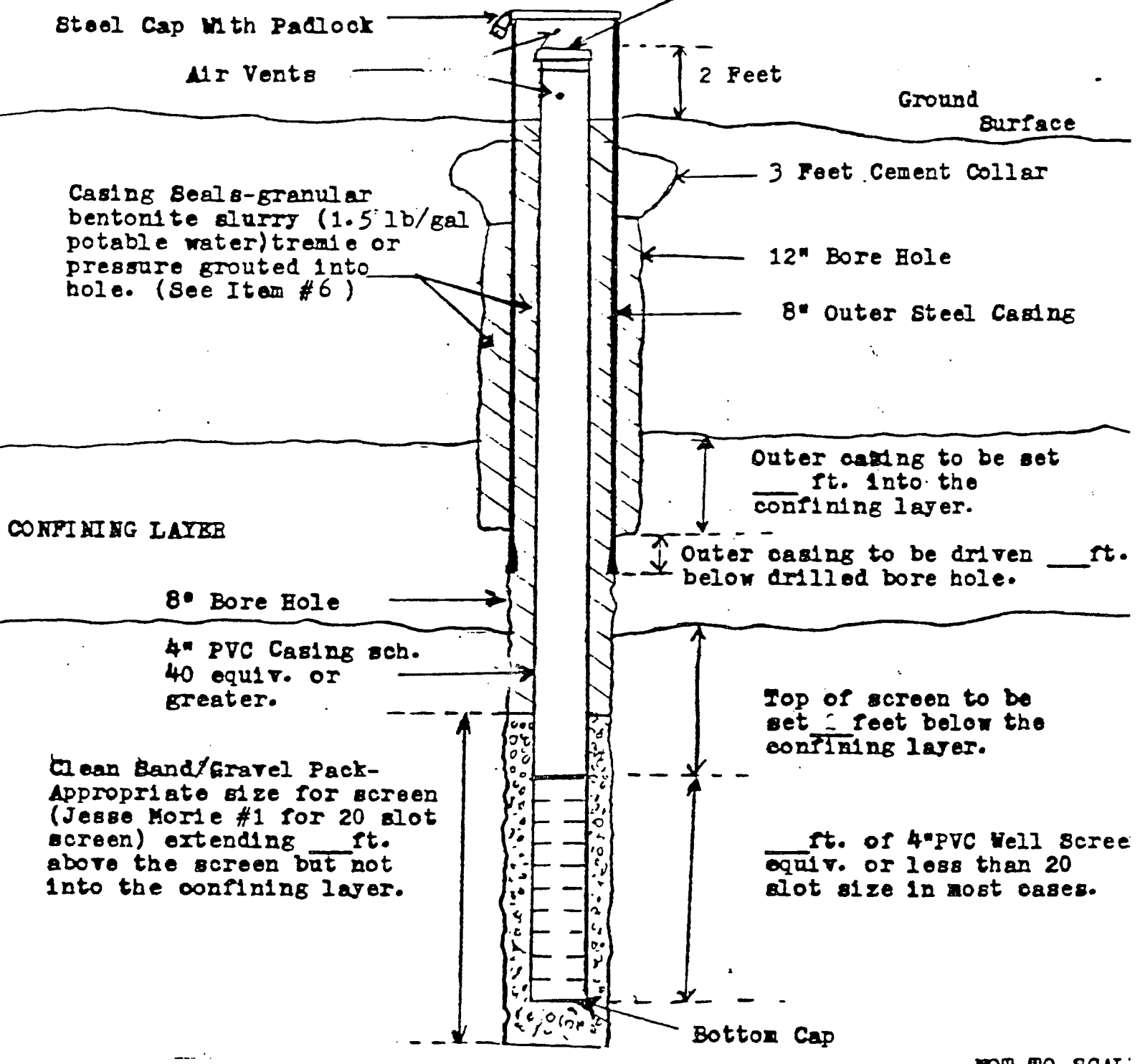
MONITOR WELL SPECIFICATIONS FOR CONFINED UNCONSOLIDATED AQUIFERS *

SITE NAME: _____

LOCATION: _____

DATE: _____

DRAFT



REQUIREMENTS: NOT TO SCAL

1. Notification to the NJDEP is required two (2) weeks prior to drilling.
2. State well permits are required for each monitor well constructed by the driller. Report "use of well" on well permit application as ground water monitoring. Permit number must be permanently affixed to each monitor well. NOTE: Well driller must be licensed in the State of New Jersey.

APPENDIX D

FEASIBILITY STUDY

SCOPE OF WORK

FEASIBILITY STUDY SCOPE OF WORK

I. REQUIREMENTS OF FEASIBILITY STUDY

A. Identify and list all potentially viable remedial action alternatives for the pollution at and/or emanating from the site

B. Develop alternatives to incorporate remedial technologies into a comprehensive, site-specific approach

C. Evaluate and compare remedial action alternatives

D. Recommend the most environmentally sound remedial action alternative which will, in a timely manner:

1. cleanup pollution at and/or emanating from the site

2. achieve and maintain applicable surface-water and ground-water quality standards pursuant to N.J.A.C. 7:14A-1 et seq., 7:9-5, 7:9-6, and guidelines established by the Department

3. return area to background conditions

4. effectively remediate damage to and provide adequate protection of human health and the environment

II. CONTENTS OF FEASIBILITY STUDY WORK PLAN

A. A statement of the requirements for the feasibility study pursuant to Section I., above

B. A detailed schedule for all feasibility study activities including

1. schedule of key interim dates in feasibility study

2. dates for submission of all permit applications required for completion of feasibility study

3. date for submitting feasibility study report to the Department

C. A list of all potentially viable remedial action alternatives to be considered

D. A presentation of initial screening procedures in accordance with the following:

1. screen all potentially viable remedial action alternatives to narrow the list of potential alternatives for further detailed analysis

2. initial screening criteria

    a. environmental and human health impacts

    b. engineering feasibility and reliability

3. all alternatives capable of remediating the environmental and human health concerns at and/or emanating from the site shall be retained

E. A presentation of characteristics to be used to describe remedial action alternatives remaining after initial screening in accordance with the following:

1. describe appropriate treatment and disposal technologies, as well as any permanent facilities required

2. specify engineering considerations required to implement the alternative (e.g., treatability study, pilot treatment facility, additional studies needed to proceed with final remedial design)

3. describe environmental and human health impacts and propose methods for mitigating or eliminating any adverse impacts

4. describe operation and maintenance/monitoring requirements of the completed remedy

5. describe off site disposal needs and transportation plans

6. describe temporary storage requirements

7. describe requirements for health and safety plans during remedial implementation (including both on site and off site health and safety considerations)

8. describe how the alternative could be phased into individual operable units, including how various components of the remedy could be implemented individually or in groups resulting in a functional phase of the overall remedy

9. describe how the alternative could be segmented into areas to allow implementation of differing phases of the alternative

10. describe how alternatives could be combined to create more effective alternatives

11. describe which Federal, State and local permits would be necessary for each alternative identified and outline the information necessary for the development of each of the permit applications

12. describe the time required for implementation, including significant interim dates

F. A detailed discussion of procedures to evaluate and compare the remedial action alternatives that remain after the initial screening in accordance with the following:

1. evaluate each alternative in accordance with the requirements referenced in I. D., above, and the following characteristics:

i. level of cleanup achievable

ii. time to achieve cleanup

iii. feasibility

iv. implementability

v. reliability

vi. ability to minimize adverse impacts during action

vii. ability to minimize off site impacts caused by action

viii. useability of ground water after implementation of alternative

ix. useability of surface water after implementation of alternative

x. useability of site after implementation of alternative

xi. legal constraints

2. compare each alternative in accordance with the requirements and characteristics identified in II. F. 1. above

G. Presentation of procedure concerning recommendation of remedial action alternative in accordance with the following:

1. based on the detailed evaluation process, recommend the most environmentally sound remedial action alternative which will, in the most timely manner, meet the requirements in I. D. above

2. prepare a detailed rationale for recommending the remedial action alternative, stating the advantages over other alternatives considered

3. prepare a conceptual design of the recommended alternative including:

   a. engineering and hydrogeologic approaches

   b. implementation schedules

   c. any special implementation requirements

   d. applicable design criteria

   e. preliminary site layout(s)

   f. operation and maintenance requirements

   g. safety plan(s)

III. CONTENT OF FEASIBILITY STUDY REPORT

A. Detailed discussion of initial screening of remedial action alternatives according to the approved FS Work Plan

B. Detailed description of remedial action alternatives that remain after initial screening according to the approved FS Work Plan

C. Detailed evaluation and comparison of remedial action alternatives based on the descriptions presented pursuant to the approved FS Work Plan

D. Recommendation of, rationale for, and conceptual design of most environmentally sound remedial alternative which meets the requirements in Section I. D., above, in the most timely manner and according to the approved FS Work Plan

E. Conceptual design of recommended remedial alternative

F. List all references used in feasibility study

APPENDIX E

REMEDIAL ACTION

SCOPE OF WORK

REMEDIAL ACTION SCOPE OF WORK

I. Detailed Engineering Design

II. Schedule for Construction, Operation and Maintenance

III. Operation, Maintenance, Monitoring and Reporting Requirements

IV. Performance Evaluation

A. The selected remedial action alternative shall meet or exceed the requirements in Appendix E, item I.D., above

B. Procedure

1. during implementation of ground-water aspect of the alternative, the recovery wells' radius of influence shall adequately be recovering all polluted ground water

a. adequate performance evaluation monitoring

b. submission of monitoring data

i. ground-water quality contour map(s)

ii. ground-water elevation contour map(s)

iii. time/concentration graphs for all recovery wells and all monitor wells

iv. time/volume pumped per month histogram for all recovery wells

2. post cleanup sampling

a. soil

b. ground water

c. surface water and sediment

V. Complete and Detailed Cost Estimate

APPENDIX F

LETTER OF CREDIT WORDING

_____ , 19__

Commissioner

NEW JERSEY DEPARTMENT OF

ENVIRONMENTAL PROTECTION

CN 402

Trenton, New Jersey 08625

Dear Sir:

We hereby establish our Irrevocable Standby Letter of Credit No. _____ in your favor, at the request and for the account of company name and address up to the aggregate amount of amount written out U.S. Dollars ($ amount), available upon presentation by you of:

1. Your sight draft, bearing reference to this letter of credit No. _____, and

2. Your signed statement reading as follows: "I certify that the amount of the draft is payable pursuant to the terms and provisions of the _____, 19__ Administrative Consent Order between the New Jersey Department of Environmental Protection and company ".

3. proof of receipt by ____company____, at least 15 calendar days prior to presentation of said letter of certification to the bank, of a registered letter notifying ____company____ of the Department's intent to draw on funds pursuant to this Irrevocable Letter of Credit.

This letter of credit is effective as of _____, 19__ and shall expire on _____, 19__ and shall not be automatically renewable but shall be renewable upon reapplication and review only.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor such draft upon presentation to us, and we shall deposit the amount of the draft directly into the standby trust fund of ____company____ in accordance with your instructions.

This credit is subject to the most recent edition of the Uniform Customs and Practice for Documentary Credits, published by the International Chamber of Commerce and the laws of the State of New Jersey.

As a condition of this credit, ____company____ is hereby required to renew this letter of credit by _____, 19__ (date to be inserted is 60 calendar days from expiration date of this letter of credit).

If ____company____ does not renew the letter of credit by _____, 19__ (same date as proceeding paragraph), we shall advise you in

writing no later than _____, 19__ (date to be inserted is 45 calendar days prior to expiration date of letter of credit) that ____company____ has not reviewed the letter of credit.

If ____company____ does not renew this letter of credit by _____, 19__, (60 calendar days prior to expiration) we will deposit the full amount of the letter of credit into the standby trust fund of ____company____ no later than _____, 19__ (14 calendar days prior to expiration) and we will notify you in writing by _____, 19__ (7 calendar days prior to expiration) that we did in fact deposit the full amount of the letter of credit.

APPENDIX G

STANDBY TRUST AGREEMENT WORDING

TRUST AGREEMENT

Trust Agreement, "Agreement", entered into as of ____(date)____ by and between ____company____ known as "Grantor" and ____issuing institution____ the "Trustee".

Whereas, the New Jersey Department of Environmental Protection, "NJDEP", an agency of the State of New Jersey, has entered into an Administrative Consent Order with Grantor dated _____, 19__, a copy of which is annexed hereto as Schedule "A", pursuant to which Grantor is obligated to establish a trust fund to assure the availability of funds to secure the performance of Grantor's obligations under that Administrative Consent Order.

Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee.

Now, Therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

a. The term "Grantor" means ____company____ who enters into this Agreement and any successors or assigns of the Grantor.

b. The term "Trustee" means the Trustee who enters into the Agreement and any successor Trustee, who has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or New Jersey agency. The name, address, and title of the Trustee is:

_____

_____

_____

c. The term "Commissioner" means the Commissioner of the New Jersey Department of Environmental Protection.

d. The term "Beneficiary" means the New Jersey Department of Environmental Protection.

e. The term "NJDEP" means the New Jersey Department of Environmental Protection.

Section 2. Identification of Facilities and Cost Estimates. This Agreement pertains to the facilities and cost estimates identified on attached Schedule "A".

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund", for the benefit of

NJDEP. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule "B", attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as herein provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by the NJDEP.

Section 4. Payment for Performance of Administrative Consent Order. The Trustee shall make payment from the Fund as the NJDEP Commissioner shall direct, in writing, to provide for the payment of the costs of performing Grantor's obligations under the _____, 19__ Administrative Consent Order (annexed hereto as Schedule A) covered by this Agreement. The Trustee shall reimburse the Grantor or other persons, as specified by NJDEP, in such amounts as the NJDEP shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts, as the NJDEP specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund, as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling and managing the Fund, the Trustee shall discharge his/her duties with respect to the Trust fund solely in the interest of the beneficiary and with the care, skill, prudence and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

a. Securities or other obligations of the Grantor, or any other owner or operator of the facilities or any of their affiliates, as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80A-2(a), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

b. The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

c. The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

a. To transfer from time to time any or all of the assets of the Fund to any common, commingled or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

b. To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80A-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

a. To sell, exchange, convey, transfer or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the

validity or expedience of any such sale or other disposition;

b. To make, execute, acknowledge and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

c. To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person or to deposit or arrange for the deposit of any securities issued by the United States Government or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all time show that all securities are part of the Fund;

d. To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking

institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

e. To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuation. The Trustee shall annually, at least 30 calendar days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the NJDEP a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 calendar days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 calendar days after the statement has been furnished to the Grantor and the NJDEP shall constitute a conclusively binding assent by the Grantor, barring the Grantor from

asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any questions arising as to the construction of this Agreement of any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services, as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason, the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date

on which it assumes administration of the trust in a writing sent to the Grantor, the NJDEP and the present Trustee by certified mail 10 calendar days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Schedule "C". The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests and instructions. All orders, requests, and instructions by the NJDEP to the Trustee shall be in writing, signed by the NJDEP Commissioner or his/her designee and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or NJDEP hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests and instructions from the Grantor and/or NJDEP, except as provided for herein.

Section 15. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the

Trustee and the NJDEP or by the Trustee and the NJDEP if the Grantor ceases to exist.

Section 16. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement, as provided in Section 15, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee and the NJDEP or of the Trustee and the NJDEP, if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 17. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust or in carrying out any directions by the Grantor or the NJDEP issued in accordance with this Agreement. The Trust shall be indemnified and saved harmless by the Grantor or from the Trustee Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 18. Choice of Law. This Agreement shall be administered, construed and enforced according to the laws of the State of New Jersey.

Section 19. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers, duly authorized, and their corporate seals to be hereunto affixed and attested, as of the date first above written:

_____

(Signature of Grantor/Title)

ATTEST:

_____

[Title/Seal]

_____

(Signature of Trustee)

ATTEST:

_____

[Title/Seal]

SCHEDULE A

Instructions to Grantor:

Include here a copy of the Administrative Consent Order.

SCHEDULE B

Instructions to the Grantor:

Include here the initial amount of money the Administrative Consent Order requires you to deposit in the irrevocable standby trust fund.

$ _____ in cash

SCHEDULE C

Instructions to the Grantor:

Include here the required information of your designee for communications with the trustee.

_____individual's name_____, _____title_____

_____company_____

CERTIFICATION OF ACKNOWLEDGEMENT

State of

County of

On this _____ day of _____, 19__, before me personally came _____(name)_____ to me known, who being by me duly sworn, did depose and say that she/he resides at _____, that she/he is _____(title)_____ of _____company_____, the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instruments is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

_____

(Notary Public)